

5780_Prelab_04

Shem Snow

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1 :

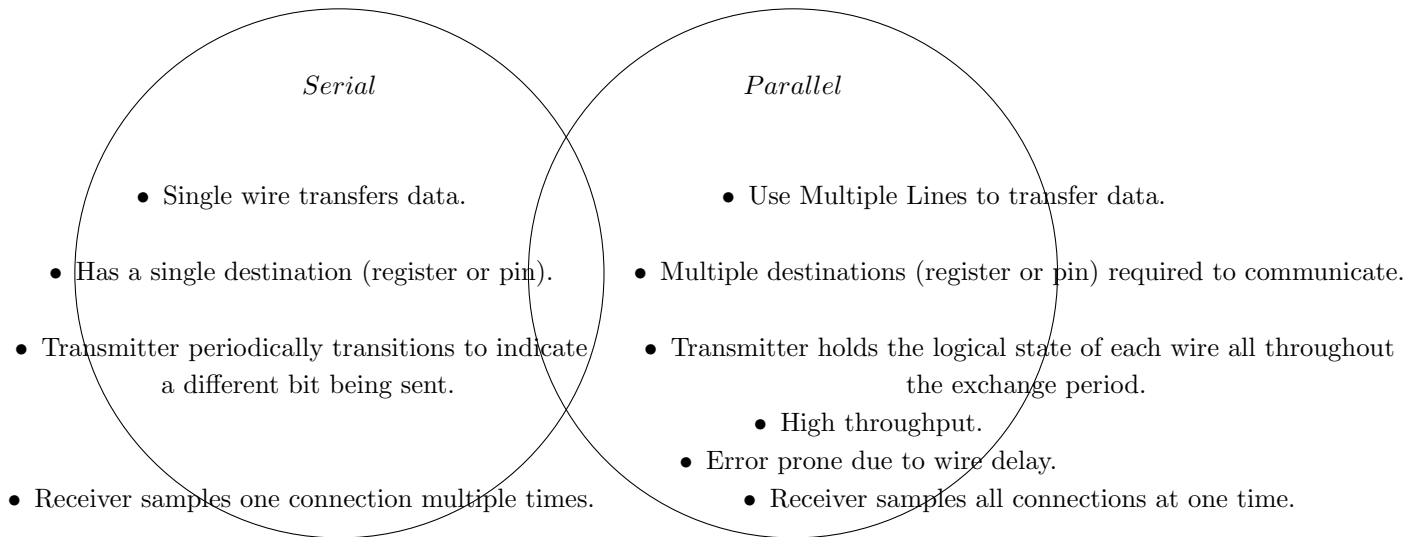


Figure 1: Parallel vs Serial Interfaces.

2 :

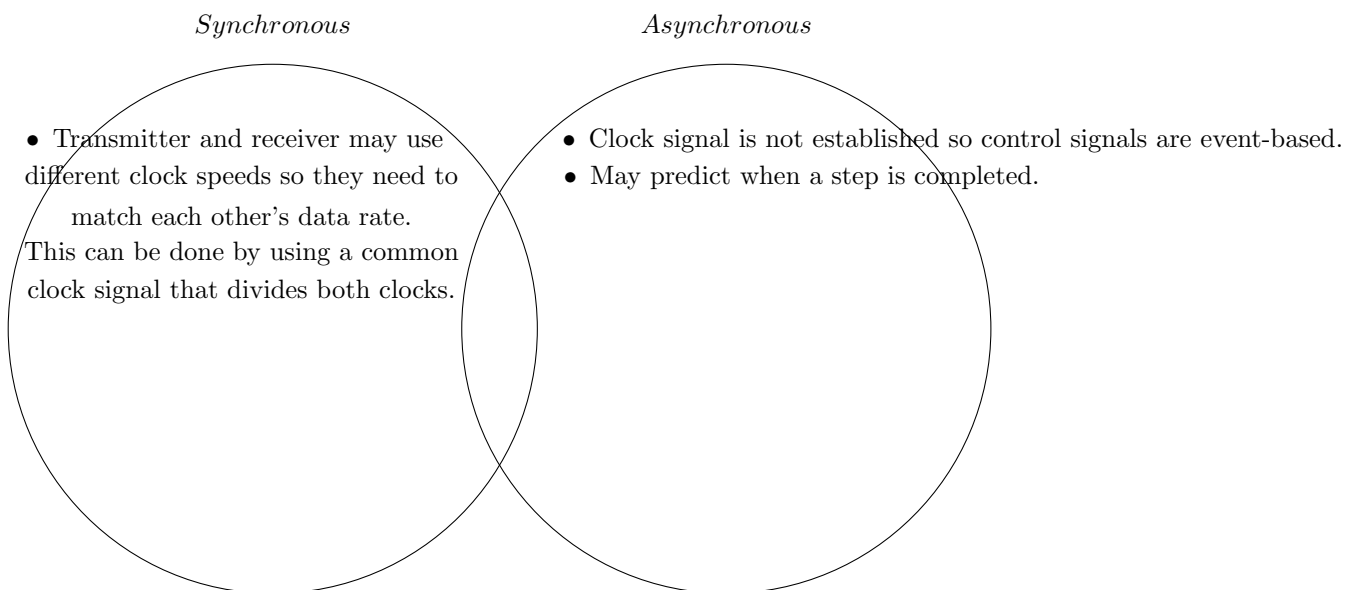


Figure 2: Synchronous vs Asynchronous Interfaces.

3 :

Communication protocols establish how multiple peripherals connect, sample inputs, and **define a message format** (For example, message sizes can be fixed or variable using a terminator character).

4 :

The baud rate is the **speed of data transmission (bits per second) from a transmitter to a receiver communicating asynchronously**. It is calculated so that the sender is synchronized with the receiver and therefore information is transferred accurately.

5 :

- The USART peripheral has an internal buffer which holds data currently in the transmission process. This buffer can be filled while the previous one is still being processed.
- The transmit data register (TDR) holds the next byte that is waiting to be transmitted.
- The USART will signal an empty transmit register with a flag in **the status register (ISR)** which means that the next byte of data can be loaded into the TDR because the old ones have been 'sent off'.

So it is the **Interrupt and status register (USART – > ISR)** that enables the transmitter hardware.

6 :

To communicate, the transmitter of one device must be connected to the receiver of the other. **The transmit line of the USB-USART cable connects to the receiver of the STM32F0.**